

IDE ♥ Agents

An opinionated guide to AI coding in 2025

CS146S: The Modern Software Developer – Oct
10, 2025



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Prev: Stanford PhD Student

 Windsurf

 Devin

Agenda

1. Overview of the AI tooling landscape
2. Synchronous vs. asynchronous tools
3. The 2025 coding workflow
 - When to hand-off from sync to async?
 - How to combine tools like Devin & Windsurf
1. Where are we headed?

Three Eras of AI Coding

Tools

Local Development ⇒ Collaborative Cloud Agents

1

GitHub Copilot: speed up coding

Code Completion

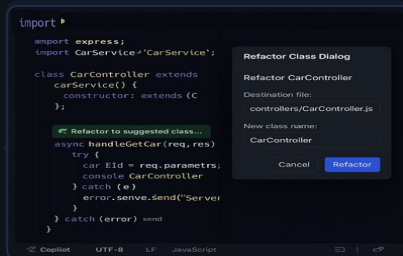
```
> print Greeting'

1 def greet:
2   # Print a greeting
3   print()
```

2

AI IDEs: single-player task completion

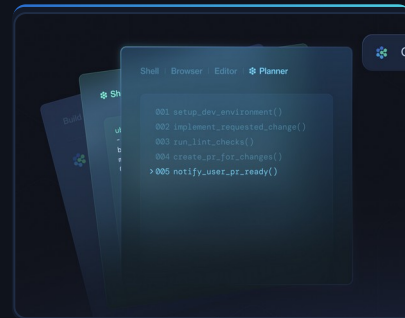
IDE Automation



3

AI agents: scale workflows in parallel

AI Software Engineer



Three Eras of AI Coding Tools

Local Development ⇒ Collaborative Cloud Agents

1 ~10% efficiency gain

GitHub Copilot: speed up coding

Code Completion

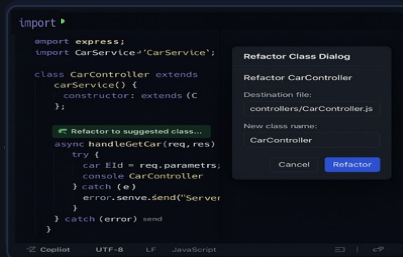
```
> print Greeting'

1 def greet:
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2 ~20% efficiency gain

AI IDEs: single-player task completion

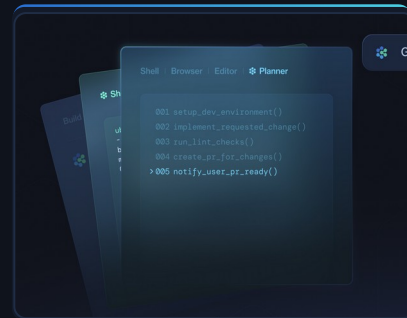
IDE Automation



3 6-12x efficiency gain

AI agents: scale workflows in parallel

AI Software Engineer



Cloud, Asynchronous

Local, Synchronous

Synchronous vs. Asynchronous

sync:

single-threaded, human-in-the-loop, your attention is focused on one task

=> AI agent works for 20 seconds - 1.5 minutes

Synchronous vs. Asynchronous

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=> AI agent works for 20 seconds - 1.5 minutes

async:

multi-threaded, human delegates to AI, switches attention between multiple tasks
=> AI agent works for 10 minutes - multiple hours

Sync

Async

Local

Cloud

Sync

Async

Local

 Windsurf

 **CURSOR**

 **GitHub Copilot**

Cloud

Sync

Async

Local

 Windsurf

 **CURSOR**

 **GitHub Copilot**

Cloud

 Devin

 **Codex**

Sync

Async

Local

 Windsurf

 CURSOR

 GitHub Copilot

CLAUDE
CODE

Cloud

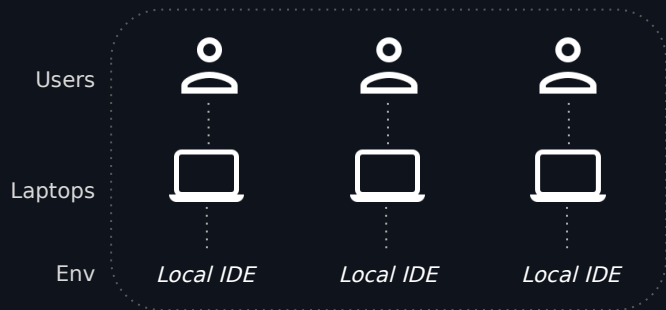
DeepWiki

 Devin

 Codex

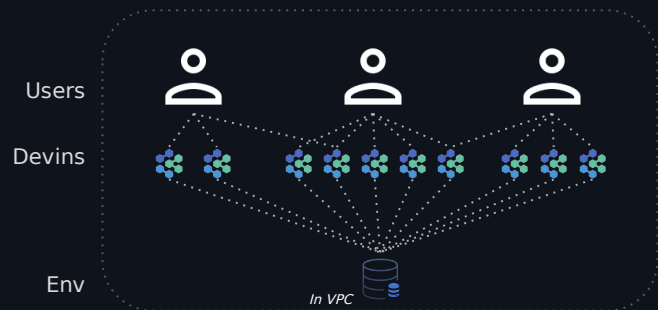
Cloud + Async enables 10x parallelism

Local AI IDEs Boost individual speed.



Local • Synchronous • 1-to-1 • Isolated Knowledge

Cloud AI Agents Unlimited Devins for parallel capacity.



Cloud • Asynchronous • 1-to-Many • Organizational Knowledge

Using async agents is a hard but learnable skill

Managing async agents can unlock 10x gains...
...but most people use sync agents.

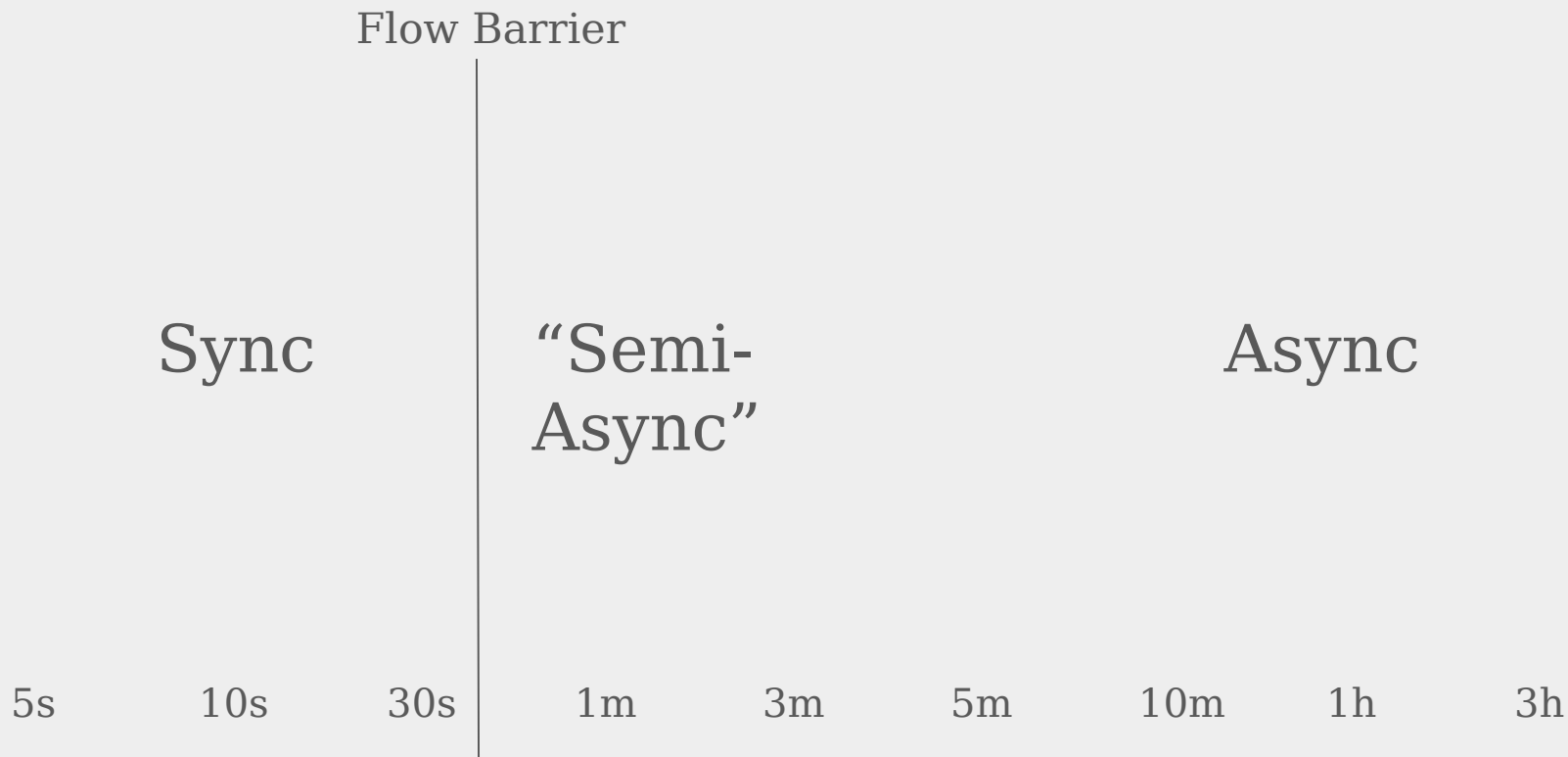
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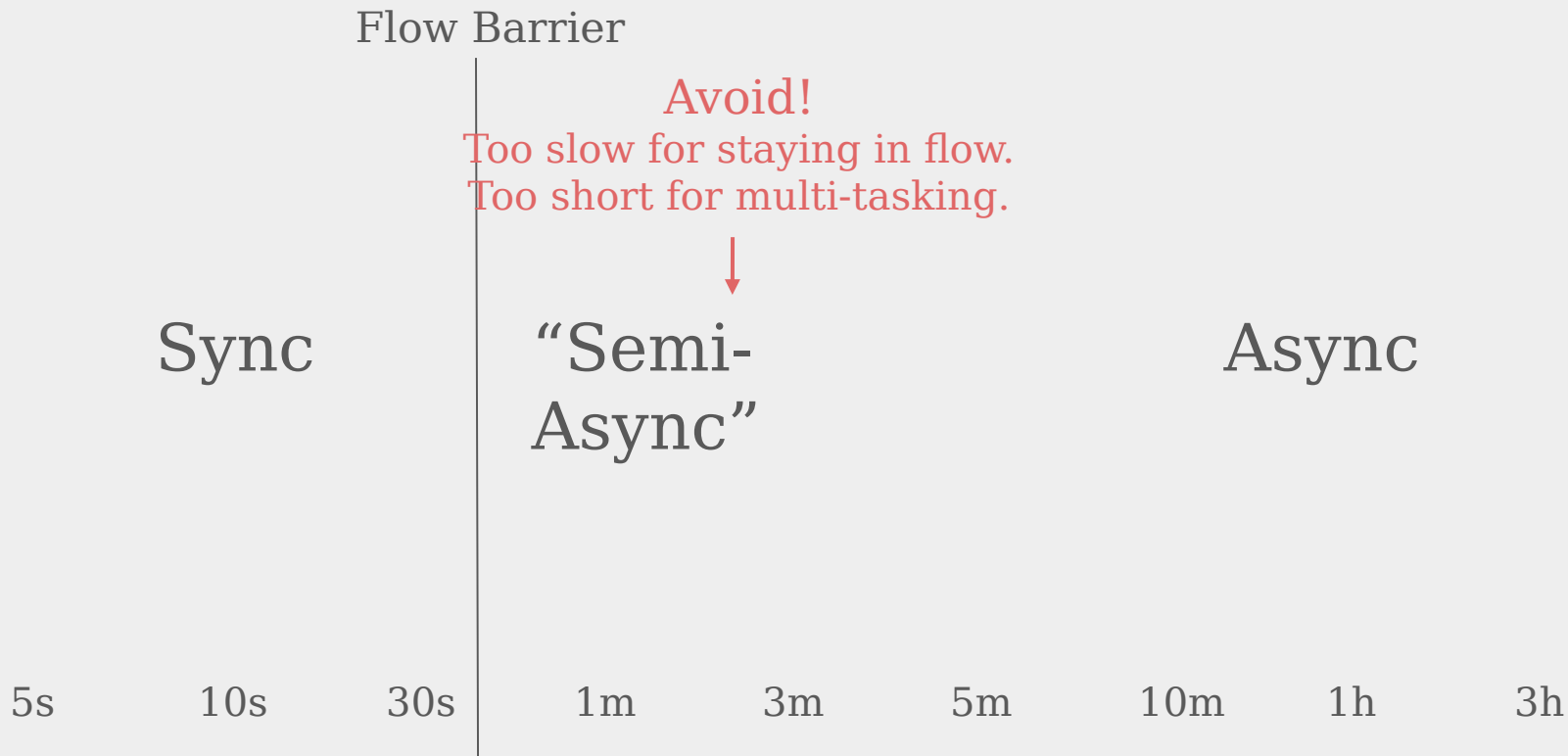
Why?

- Turns out management & delegation is a difficult skill to master – whether it's humans or agents.
- Requires ability to cycle between multiple tasks and quickly understanding new context

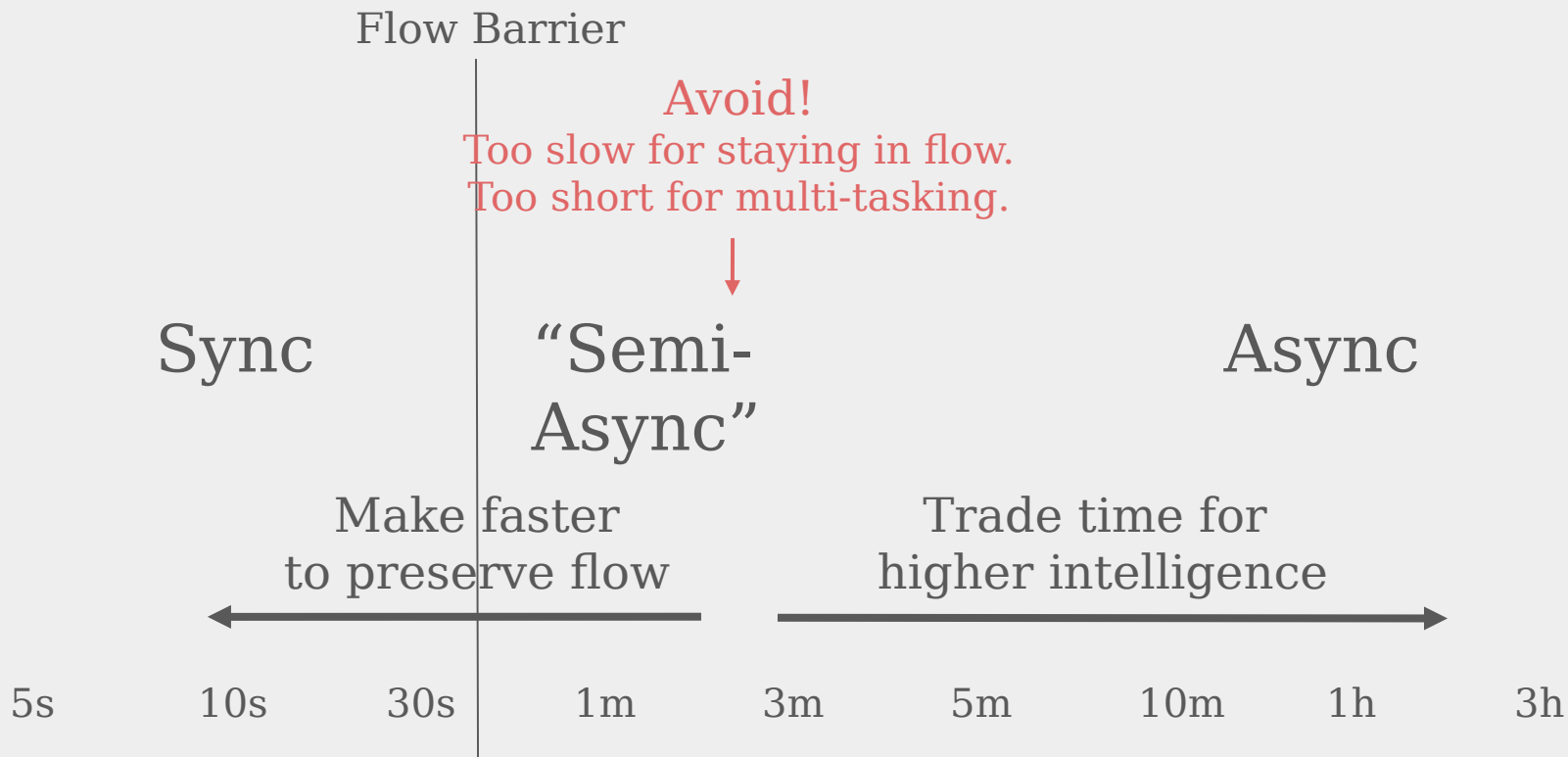
Semi-Async: The awkward middle



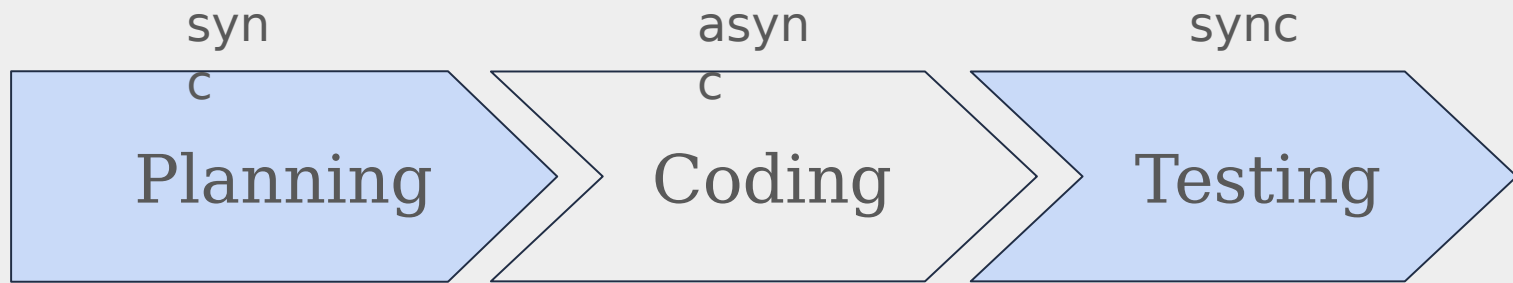
Semi-Async: The awkward middle



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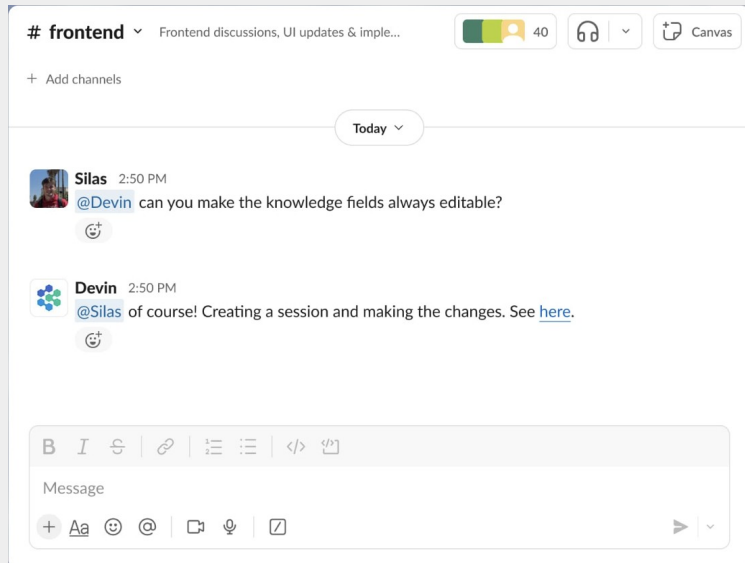




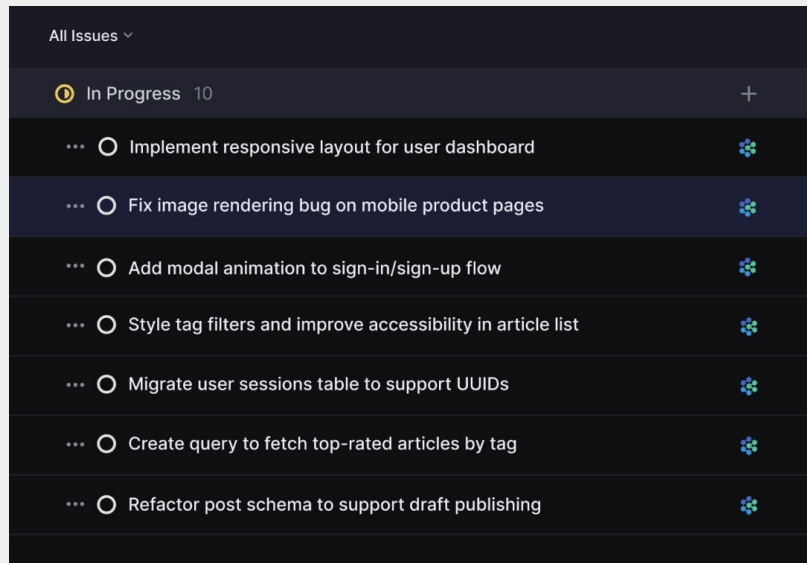
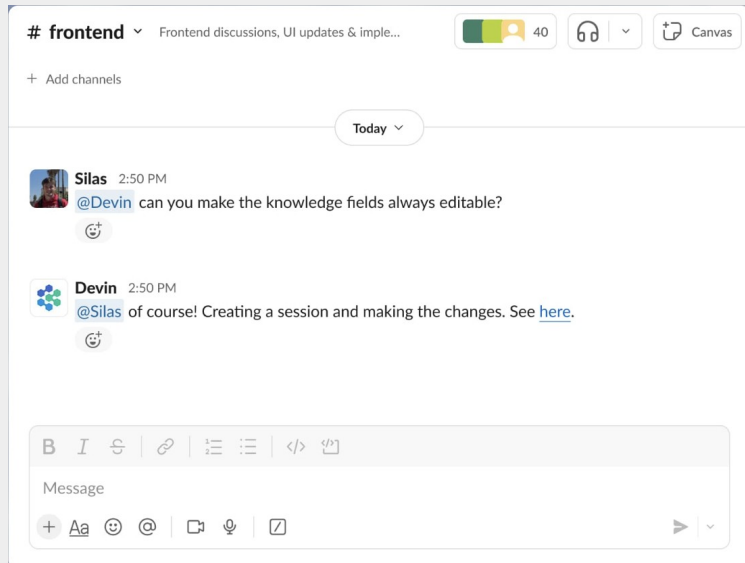
Planning with Windsurf & Devin

1. DeepWiki
2. Ask Devin
3. Codemaps
4. DeepWiki in Windsurf

Delegate the **coding** to the agent



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Testing the agent's changes

Common workflow:

1. Delegate task to Devin (async)
2. Test & refine changes in Windsurf (sync)

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Future outlook:

If async agents could test autonomously, the leverage increases.

This is slowly starting to become a reality.

Where are we headed?

Today:

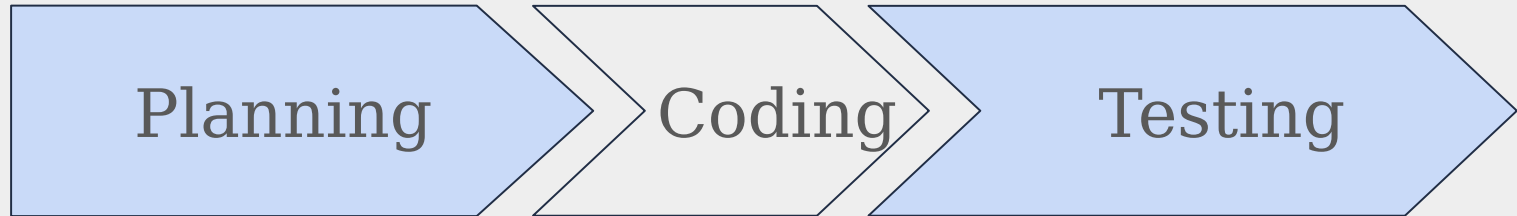


Where are we headed?

Today:



Future:



Where are we headed?

1. The human engineer as the agent manager
 - a. Leveraging sync tools to solve the most difficult problems
 - b. Leveraging async tools to achieve 10x leverage

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1. The human engineer as the agent manager
 - a. Leveraging sync tools to solve the most difficult problems
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2. Valuable skills for the future:
 - a. Delegation & multi-threading
 - b. Code reading
 - c. Planning, scoping, architecting

Thank you!